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ABSTRACT

This publication defines academic standards and describes the development, adoption, and use of Wisconsin's Model Academic Standards, as well benefits of academic standards and application of the standards across the curriculum. The five categories that applications fall into include: (1) application of the basics; (2) ability to think; (3) skill in communication; (4) production of quality work; and (5) connections with community. The information and technology literacy standards are grouped into four categories or content standards specifying what a student should know and be able to do. The first two content standards focus on technology use and information processing skills; the latter two build upon these by adding performance standards that deal with attitudes, appreciation, independent learning, teamwork skills, and personal and social responsibility. The four content standards are: media and technology; information and inquiry; independent learning; and the learning community. Each content standard is followed by performance standards that tell how students will show that they are meeting the content standard. Each performance standard includes a number of indicators that detail how students will demonstrate proficiency in a particular area. (Contains a glossary.) (AEF)

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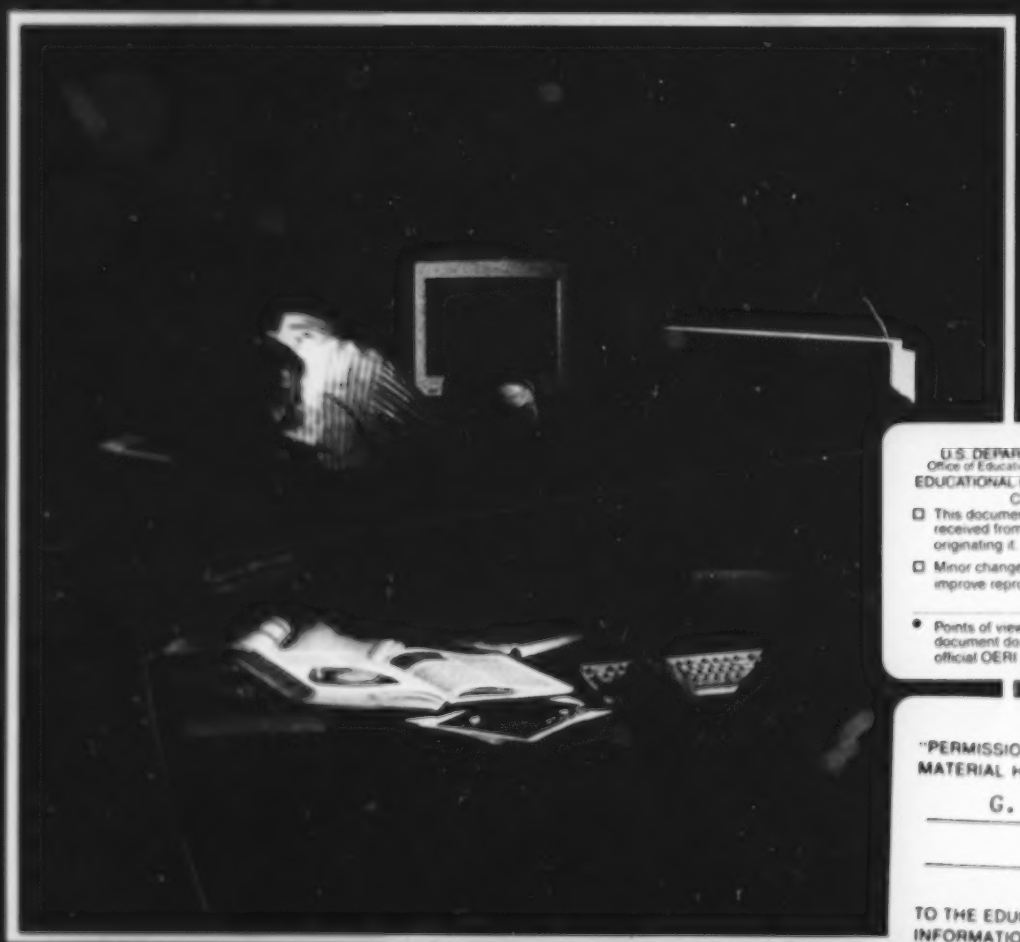

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Wisconsin's Model Academic Standards for Information and Technology Literacy

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A Letter From the State Superintendent

To the Citizens of Wisconsin:

Wisconsin has long been a model for other states in terms of education quality. However, the world is rapidly becoming a more complex place. As a result, we must expect greater academic achievement from our children today if they are to be adequately prepared for the challenges of tomorrow.

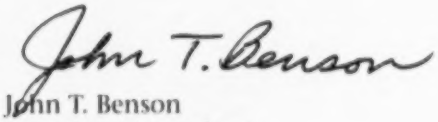
The only way to ensure that Wisconsin's students have the skills and abilities to be successful in this rapidly changing technological world is to set clear, high academic standards that describe precisely what today's students must learn and be able to do in order to be successful in their adult lives. This is why we focused our efforts over the past two years creating model academic standards in all subject areas. While Wisconsin's Model Academic Standards do demand more of our students, we are confident that our students are equal to the task.

These model academic standards represent the work of a task force made up of people from diverse backgrounds. Educators, parents, and business people produced the academic content and performance standards in this document. Drafts were subjected to public engagement in which many additional people offered input.

It must be stressed that these standards are not intended to limit local districts. Instead they are a model to be met or exceeded. Our hope is that the standards will shape teaching and learning in Wisconsin's more than 2000 school buildings. The standards will define the criteria by which one can judge the quality of education programs. While many schools already have clearly defined high academic standards, many others may wish to review and perhaps change their learning goals and teaching methods.

Standards logically provide the foundation for testing; and, testing results are a critical barometer of both student and teacher success. Local tests that are well-aligned to the standards are a clear indicator of students' preparation for future education, civic responsibility, and meaningful employment.

In closing, I want to commend the members of the task force who gave freely of their time to produce the standards in this document. Finally, the citizens of Wisconsin must be thanked for devoting their time and effort to the development of the final draft of Wisconsin's Model Academic Standards.



John T. Benson
State Superintendent

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Wisconsin's Model Academic Standards for Information and Technology Literacy would not have been possible without the efforts of many people. Members of the task force, writing team, and reactor group gave their time and expertise in developing these standards. In addition, their employing agencies generously granted them time to work on this initiative.

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Introduction

Defining the Academic Standards

What are academic standards? Academic standards specify what students should know and be able to do, what they might be asked to do to give evidence of standards, and how well they must perform. They include content, performance, and proficiency standards.

— Content standards refer to *what* students should know and be able to do.

— Performance standards tell *how* students will show that they are meeting a standard.

— Proficiency standards indicate *how well* students must perform.

Why are academic standards necessary? Standards serve as rigorous goals for teaching and learning. Setting high standards enables students, parents, educators, and citizens to know what students should have learned at a given point in time. The absence of standards has consequences similar to lack of goals in any pursuit. Without clear goals, students may be unmotivated and confused.

Contemporary society is placing immense academic demands on students. Clear statements about what students must know and be able to do are essential to ensure that our schools offer students the opportunity to acquire the knowledge and skills necessary for success.

Why are state-level academic standards important? Public education is a state responsibility. The state superintendent and legislature must ensure that all children have equal access to high quality education programs. At a minimum, this requires clear statements of what all children in the state should know and be able to do as well as evidence that students are meeting these expectations. Furthermore, academic standards form a sound basis on which to establish the content of a statewide assessment system.

Why does Wisconsin need its own academic standards? Historically, the citizens of Wisconsin are very serious and thoughtful about education. They expect and receive very high performance from their schools. While educational needs may be similar among states, values differ. Standards should reflect the collective values of the citizens and be tailored to prepare young people for economic opportunities that exist in Wisconsin, the nation, and the world.

Developing the Academic Standards

Who wrote the academic standards and what resources were used? Academic standards for the non-state-assessed subjects were drafted by task forces appointed by the state superintendent. The task forces consisted of educators, parents, board of education members, and business and industry people. After reviewing national standards in the subject area, standards from other states, and standards from local Wisconsin school districts, each task force diligently and thoughtfully composed the academic standards for its respective subject.

How was the public involved in the standards process? Public input is crucial to the success of implementing high-quality standards. It was absolutely essential that the final academic standards reflect the values of Wisconsin's citizens.

Forums, focus groups, and input on the discussion drafts of the academic standards were used for getting citizens' ideas. Drafts of the standards were widely available throughout the state—including the DPI home page available on the Internet. All input received serious consideration.

Using the Academic Standards

Must a district adopt Wisconsin's Model Academic Standards? Adopting Wisconsin's Model Academic Standards is voluntary, not mandatory. By law, however, districts must have academic standards in place by August 1, 1998, in reading and writing, geography and history, mathematics, and science. Districts may adopt the model state standards, or standards from other sources, or develop their own standards. Although not required by law to have standards in the other subjects, districts may choose to adopt or develop academic standards in those areas as well.

How will local districts use the academic standards? Districts may use the academic standards as guides for developing local grade-by-grade curriculum. Implementing standards may require some school districts to upgrade school and district curriculums. In some cases, this may result in significant changes in instructional methods and materials, local assessments, and professional development opportunities for the teaching and administrative staff.

What is the difference between academic standards and curriculum? Standards are statements about what students should know and be able to do, what they might be asked to do to give evidence of learning, and how well they should be expected to know or do it. Curriculum is the program devised by local school districts used to prepare students to meet standards. It consists of activities and lessons at each grade level, instructional materials, and various instructional techniques. In short, standards define what is to be learned at certain points in time, and from a broad perspective, what performances will be accepted as evidence that the learning has occurred. Curriculum specifies the details of the day-to-day schooling at the local level.

What is the link between statewide academic standards and statewide testing? Statewide academic standards in mathematics, English language arts, science, and social studies determine the scope of statewide testing. While these standards are much broader in content than any single Wisconsin Student Assessment System (WSAS) test, they do describe the range of knowledge and skills that may appear on the tests. If content does not appear in the academic standards, it will not be part of a WSAS test. The statewide standards clarify what must be studied to prepare for WSAS tests. If students have learned all of the material indicated by the standards in the assessed content areas, they should do very well on the state tests.

Relating the Academic Standards to All Students

Parents and educators of students with disabilities, with limited English proficiency (LEP), and with accelerated needs may ask why academic standards are important for their students. Academic standards serve as a valuable basis for establishing meaningful goals as part of each student's developmental progress and demonstration of proficiency. The clarity of academic standards provides meaningful, concrete goals for the achievement of students with disabilities, LEP, and accelerated needs consistent with all other students.

Academic standards may serve as the foundation for individualized programming decisions for students with disabilities, LEP, and accelerated needs. While the vast majority of students with disabilities and LEP should be expected to work toward and achieve these standards, accommodations and modifications to help these students reach the achievement goals will need to be individually identified and implemented. For students with disabilities, these decisions are made as part of their individualized education program (IEP) plans. Accelerated students may achieve well beyond the academic standards and move into advanced grade levels or into advanced coursework.

Clearly, these academic standards are for all students. As our state assessments are aligned with these standards and school districts adopt, adapt, or develop their own standards and multiple measures for determining proficiencies of students, greater accountability for the progress of all students can be assured. In Wisconsin this means all students reaching their full individual potential, every school being accountable, every parent a welcomed partner, every community supportive, and no excuses.

Applying the Academic Standards Across the Curriculum

When community members and employers consider what they want citizens and employees to know and be able to do, they often speak of broad areas of applied knowledge such as communication, thinking, problem-solving, and decision-making. These areas connect or go beyond the mastery of individual subject areas. As students apply their knowledge both within and across the various curricular areas, they develop the concepts and complex thinking of educated persons.

Community members need these skills to function as responsible citizens. Employers prize those employees who demonstrate these skills because they are people who can continue learning and connect what they have learned to the requirements of a job. College and university faculty recognize the need for these skills as the means of developing the level of understanding that separates the expert from the beginner.

Teachers in every class should expect and encourage the development of these shared applications, both to promote the learning of the subject content and to extend learning across the curriculum. These applications fall into five general categories:

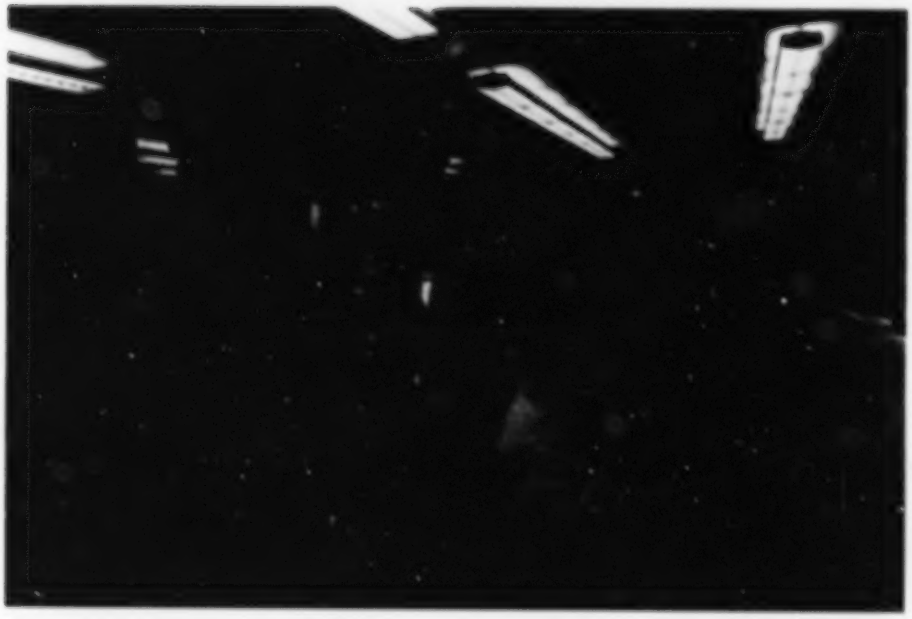
1) **Application of the Basics**

2) **Ability to Think**
   - — Problem-solving
   - — Informed decision-making
   - — Systems thinking
   - — Critical, creative, and analytical thinking
   - — Imagining places, times, and situations different from one's own
   - — Developing and testing a hypothesis
   - — Transferring learning to new situations

3) **Skill in Communication**
   - — Constructing and defending an argument
   - — Working effectively in groups
   - — Communicating plans and processes for reaching goals
   - — Receiving and acting on instructions, plans, and models
   - — Communicating with a variety of tools and skills

4) **Production of Quality Work**
   - — Acquiring and using information
   - — Creating quality products and performances
   - — Revising products and performances
   - — Developing and pursuing positive goals

5) **Connections with Community**
   - — Recognizing and acting on responsibilities as a citizen
   - — Preparing for work and lifelong learning
   - — Contributing to the aesthetic and cultural life of the community
   - — Seeing oneself and one's community within the state, nation, and world
   - — Contributing and adapting to scientific and technological change



Overview of Information and Technology Literacy

Definition

Information and Technology Literacy is the ability of an individual, working independently or with others, to use tools, resources, processes, and systems responsibly to access and evaluate information in any medium, and to use that information to solve problems, communicate clearly, make informed decisions, and construct new knowledge, products, or systems.

Background

Today's society is witnessing an unprecedented explosion of information and knowledge. In an environment where information is doubling every three to five years and technology is providing increased access to previously restricted or unknown information sources, students face both difficult challenges and unlimited opportunities. The successful students, workers, and citizens of tomorrow will be self-directed, lifelong learners.

Wisconsin's Model Academic Standards for Information and Technology Literacy identifies and defines the knowledge and skills essential for all Wisconsin students to access, evaluate, and use information and technology. These standards connect and interrelate current perspectives in information literacy, media literacy, and technology literacy into a unified conceptual framework. This framework demonstrates a progression from the physical access skills for the use of media and technology, to the intellectual access skills of information use, to skills and attitudes for learning independently, and finally to the skills needed for working responsibly and productively within groups.

Integration

The purpose of these standards is to identify information and technology content and performance standards for all students throughout the pre-kindergarten to grade twelve (PK-12) curriculum. The standards are designed to be integrated into the various content and skill areas of the school curriculum. The focus is on learning *with* information and technology rather than learning *about* information and technology. This integration will be varied and diverse based on the curricula of individual schools and school systems. The task force hopes that much reflective dialogue will occur in school districts among administrators, curriculum directors, library media specialists, technology coordinators, teachers, parents, and community members as each district adopts or modifies these standards and integrates them into the local instructional program for students.

The focus is on a sequential and broad set of information and technology content and performance standards that are necessary for full development of skills for "learning how to learn" addressed in the core areas of the PK-12 curriculum. The task force recognizes that some of these standards are included in other academic standards and believes this inclusion underscores the importance of information and technology literacy skills by providing entry points for integrating them into a variety of curricular areas. The task force also recognizes that elective programs or advanced courses that are not a part of the curriculum required for all students may require additional or very specific technology skills beyond those listed in these standards.

Finally, it is important to recognize that accomplishing many of the performance standards listed here will require access to technology by individual students or student workgroups. The task force believes these standards can be achieved with a strong district commitment to a technological infrastructure including sufficient equipment, materials and staffing; appropriate technical support; and a comprehensive, ongoing program of teacher training and staff development.

Organization

The information and technology literacy standards are grouped into four categories or content standards specifying what a student should know and be able to do. The first two content standards focus on technology use and information processing skills. The latter two build upon these by adding performance standards that deal with attitudes, appreciation, independent learning, teamwork skills, and personal and social responsibility.

The four content standards are:

A. **Media and Technology**—Students in Wisconsin will select and use media and technology to access, organize, create, and communicate information for solving problems and constructing new knowledge, products, and systems.

B. **Information and Inquiry**—Students in Wisconsin will access, evaluate, and apply information efficiently and effectively from a variety of sources in print, non print, and electronic formats to meet personal and academic needs.

C. **Independent Learning**—Students in Wisconsin will apply technological and information skills to issues of personal and academic interest by actively and independently seeking information; demonstrating critical and discriminating reading, listening, and viewing habits; and, striving for personal excellence in learning and career pursuits.

D. **The Learning Community**—Students in Wisconsin will demonstrate the ability to work collaboratively in teams or groups, use information and technology in a responsible manner, respect intellectual property rights, and recognize the importance of intellectual freedom and access to information in a democratic society.

Each content standard is followed by performance standards that tell how students will show that they are meeting the content standard. Each performance standard includes a number of indicators that detail how students will demonstrate proficiency in a particular performance area. When students demonstrate proficiency in these performance standards and indicators, they will have mastered a literacy that is basic to success in the world of the 21st century.

In this document the term "media" refers to a wide range of formats including print, non print, and electronic. The term "information" reflects narrative, factual, and creative expressions in any of these formats. "Technology" refers to the application of knowledge, tools, and skills to solve practical problems and extend human capabilities. Though technology is often described as process, it is more commonly known by its products and tools and their effects on society. An extensive glossary is included in this document so the reader can find definitions of terminology used in these standards.

A. MEDIA AND TECHNOLOGY

CONTENT STANDARD

Students in Wisconsin will select and use media and technology to access, organize, create, and communicate information for solving problems and constructing new knowledge, products, and systems.

Rationale: Success in the 21st century will depend upon an understanding of and the capability to use current and emerging media and technology. The following performance standards list the behaviors which show that students recognize the various types of media and technology, know how to operate and use these technologies, and make sound judgments regarding the most effective technologies to use in specific situations. As the growth of media and technology continues to escalate, students meeting these performance standards will be better prepared to continue to learn and utilize them for the analysis, construction, and presentation of knowledge.

PERFORMANCE STANDARDS

▶ *BY THE END OF GRADE 4 STUDENTS WILL:*

A.4.1 Use common media and technology terminology and equipment

- identify and define basic computer terminology (e.g., software, hardware, cursor, startup/shutdown, storage medium, file, memory)
- identify and explain the functions of the components of a computer system (e.g., monitor, central processing unit, storage devices, keyboard, mouse, printer)
- demonstrate proper care and correct use of media and equipment
- demonstrate the correct use of input devices (e.g., mouse, keyboard) and output devices (e.g., monitor, printer, speakers)
- develop touch keyboarding techniques using both hands
- save and backup files on a computer hard drive, storage medium, or server
- demonstrate the use of still and video cameras and scanners
- solve problems using the basic four arithmetic functions of a calculator when appropriate
- operate basic audio and video equipment to listen to and view media programs

A.4.2 Identify and use common media formats

- identify the wide variety of current media formats (e.g., video programs, magazines, computer software, audio cassettes, CD-ROM and DVD, newspapers, books, the Internet)
- recognize the common organizational characteristics of print media (e.g., title page, table of contents, copyright statement, index)
- differentiate among the common types of computer software (e.g., drawing programs, utilities, word processing, simulations)
- listen to and view common audio and video media
- access information using common electronic reference sources (e.g., indexes, almanacs, on-line catalogs, encyclopedias)
- describe the purpose and use of a virus detection program
- demonstrate how to open and run a software program from a local storage device or network server
- create, save, move, copy, retrieve, and delete electronic files
- incorporate graphics, pictures, and sound into another document

A.4.3 Use a computer and productivity software to organize and create information

- identify and define basic word processing terminology (e.g., cursor, open, save, file, I-beam, window, document, cut, copy, paste)
- produce a document using a word processing program
- edit a word-processed document using a spell checker
- demonstrate the text editing features of a word processing program (e.g., bold face, italics, underline, double spacing, different size and style of fonts) to produce a finished product
- explore special formatting features (e.g., borders, shading, centering, justification) of a word processing program
- identify a database and define basic database terms (e.g., file, record, field)
- use a prepared database template to enter and edit data, and to locate records
- identify a spreadsheet and explain basic spreadsheet terms (e.g., column, row, cell)
- use a prepared spreadsheet template to enter and edit data, and to produce and interpret a simple graph or chart

A.4.4 Use a computer and communications software to access and transmit information

- describe and explain an on-line information network
- generate, send, retrieve, save, and organize electronic messages
- log on and view information from preselected sites on the Internet
- use the functions of a web browser to navigate and save World Wide Web sites
- identify and use simple search engines and directories

A.4.5 Use media and technology to create and present information

- use draw, paint or graphics software to create simple signs, posters, banners, charts, visuals, etc.
- plan a multimedia production using an outline or storyboard
- create and present a short video or hypermedia program

A.4.6 Evaluate the use of media and technology in a production or presentation

- identify the media and technology used
- explain how well the media and technology contributed to its impact
- identify simple criteria for judging the quality of a production or presentation
- judge how well a particular production meets the identified criteria
- suggest ways to improve future productions or presentations

BY THE END OF GRADE 8 STUDENTS WILL:

A.8.1 Use common media and technology terminology and equipment

- identify and define computer and networking terms (e.g., modem, file server, client station, LAN, Internet/ Intranet, data storage device)
- demonstrate the correct operation of a computer system on a network
- demonstrate touch keyboarding skills at acceptable speed and accuracy levels (suggested range 20-25 wpm)
- organize and backup files on a computer disk, drive, server, or other storage device
- recognize and solve routine computer hardware and software problems
- use basic content-specific tools (e.g., environmental probes, measurement sensors) to provide evidence/ support in a class project
- scan, crop, and save a graphic using a scanner, digital camera, or other digitizing equipment
- use simple graphing calculator functions to solve a problem
- capture, edit, and combine video segments using a multimedia computer with editing software or a video editing system

A.8.2 Identify and use common media formats

- describe the operating and file management software of a computer (e.g., desktop, file, window, folder, directory, pull-down menu, dialog box)
- identify the various organizational patterns used in different kinds of reference books
- define the basic types of learning software (e.g., drill and practice, tutorial, simulation)
- use electronic encyclopedias, almanacs, indexes, and catalogs to retrieve and select information
- describe the various applications of productivity software programs (e.g., word processing, database, spreadsheet, presentation, communication, drawing, desktop publishing)
- identify common integrated software packages or applications suites
- use a graphics program to create or modify detail to an image or picture

A.8.3 Use a computer and productivity software to organize and create information

- explain the use of basic word processing functions (e.g., menu, tool bars, dialog boxes, radio buttons, spell checker, thesaurus, page layout, headers and footers, word count, tabs)
- use the spell checker and thesaurus functions of a word processing program
- move textual and graphics data from one document to another
- use graphics software to import pictures, images, and charts into documents
- use a graphical organizer program to construct outlines or webs that organize ideas and information
- compose a class report using advanced text formatting and layout styles (e.g., single and double spacing, different size and style of fonts, indents, headers and footers, pagination, table of contents, bibliography)
- classify collected data and construct a simple database by defining fields, entering and sorting data, and producing a report
- construct a simple spreadsheet, enter data, and interpret the information
- plot and use different types of charts and graphs (e.g., line, bar, stacked, scatter diagram, area, pie charts, pictogram) from a spreadsheet program
- incorporate database and spreadsheet information (e.g., charts, graphs, lists) in word-processed documents

A.8.4 Use a computer and communications software to access and transmit information

- define basic on-line searching and Internet terminology (e.g., website, HTML, home page, hypertext link, bookmark, URL address)
- send an e-mail message with an attachment to several persons simultaneously
- access information using a modem or network connection to the Internet or other on-line information services
- view, print, save, and open a document from the Internet or other on-line sources
- use basic search engines and directories to locate resources on a specific topic
- demonstrate efficient Internet navigation
- organize World Wide Web bookmarks by subject or topic

A.8.5 Use media and technology to create and present information

- use draw, paint, or graphics software to create visuals that will enhance a class project or report
- design and produce a multimedia program
- plan and deliver a presentation using media and technology appropriate to topic, audience, purpose, or content

A.8.6 Evaluate the use of media and technology in a production or presentation

- determine the purpose of a specific production or presentation
- describe the effectiveness of the media and technology used in a production or presentation
- identify criteria for judging the technical quality of a production or presentation
- judge how well the production or presentation meets identified criteria
- recommend ways to improve future productions or presentations

BY THE END OF GRADE 12 STUDENTS WILL:

A.12.1 Use common media and technology terminology and equipment

- identify and define basic on-line and telecommunications terminology or concepts (e.g., bandwidth, satellite dish, distance learning, desktop conferencing, listserv, downlink, teleconference, virtual reality)
- demonstrate proper keyboarding mechanics and touch type accurately (suggested range 30-35 wpm)
- use a camcorder, VCR, multimedia computer, or editing equipment to produce a short video program
- identify common graphic, video, and sound file formats (e.g., JPEG, GIF, MPEG, QUICKTIME, WAV)
- use desktop or video conferencing equipment and systems

A.12.2 Identify and use common media formats

- identify examples of agents, expert systems, or artificial intelligence (e.g., search engine, grammar checker, voice recognition, translators)
- describe the common organizational patterns in different types of print media
- identify and explain the use of common microforms
- demonstrate how to import and export text, graphic, and sound files
- distinguish between an individual productivity program and an integrated software program or applications suite
- edit, import, and export movie or video files

A.12.3 Use a computer and productivity software to organize and create information

- explain terminology and concepts connected with integrated software or an applications suite (e.g., tool palette, bulleted or numbered lists, macros, auto-correct, find-and-replace, stylesheets)
- use an integrated program or applications suite to complete a class assignment
- proofread and edit a document using the spell, thesaurus, and grammar checking functions of a word processing program
- manipulate graphics objects in a word processing program (e.g., select, move, modify, delete, duplicate, arrange)
- use desktop publishing and graphics software to produce page layouts in different formats (e.g., brochure, tri-fold, newsletter)
- analyze data from a database and present conclusions in a document or report
- construct a spreadsheet, enter data into cells, use mathematical functions to manipulate/process data, generate a chart or graph, and interpret the results
- use a computer and graphical organizer software to generate modifiable flow charts, project time lines, organizational charts, or calendars

A.12.4 Use a computer and communications software to access and transmit information

- choose most appropriate search engines and directories to locate specific resources on the Internet or other on-line services
- distinguish between "pull" and "push" or "broadcast" methods of acquiring information from an on-line source
- employ FTP (file transfer protocol) to retrieve and download computer files from a remote computer
- use desktop conferencing, e-mail, or groupware to communicate with others regarding assignments or class projects
- establish access to primary sources and other experts for class reports or projects
- participate in an on-line discussion group or listserv appropriate to a content area
- gather and organize statistical or survey data using e-mail, listservs, or on-line news or discussion groups

A.12.5 Use media and technology to create and present information

- use draw, paint, graphics, or presentation software to visually communicate ideas or concepts
- produce a multimedia program using text, graphics, moving images, and sound
- develop a document or file for inclusion into a website or web page
- participate in a desktop conferencing session to present and share information with others

A.12.6 Evaluate the use of media and technology in a production or presentation

- assess the purpose and effectiveness of a production or presentation
- evaluate the appropriateness and effectiveness of the media and technology used
- determine criteria for judging the delivery, pacing, focus, and technical quality of the production or presentation
- judge how well the production or presentation meets specified criteria
- specify ways to improve future productions or presentations

B. INFORMATION AND INQUIRY

CONTENT STANDARD

Students in Wisconsin will access, evaluate, and apply information efficiently and effectively from a variety of sources in print, nonprint, and electronic formats to meet personal and academic needs.

Rationale: Today's students face a present and future in which they will encounter unprecedented access to ever increasing amounts of information. Students must be prepared to evaluate critically each item of information in order to select and use information effectively in learning and decision-making for personal growth and empowerment. This critical evaluation requires that students have frequent opportunities to learn how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. Mastery of information and inquiry skills will prepare students to participate in a rapidly changing, information-based environment.

PERFORMANCE STANDARDS

▶ *BY THE END OF GRADE 4 STUDENTS WILL:*

B.4.1 Define the need for information

- identify the information problem or question to be resolved
- determine what is already known about the information problem or question
- formulate initial questions to define what additional information is needed
- determine a specific focus for the information search questions

B.4.2 Develop information seeking strategies

- identify possible sources of information including print, nonprint, electronic, and human resources
- evaluate possible sources based on currency, genre, and relevance to topic
- select more than one resource when appropriate
- identify keywords and phrases for each information source
- recognize different ways to organize ideas, concepts, and phrases
- list steps to follow in carrying out the information search

B.4.3 Locate and access information sources

- recognize that materials in the school library media center are organized in a systematic manner
- locate materials using the classification system of the school library media center
- identify and use printed or electronic catalogs to access materials in the school library media center
- search for information by keyword, author, title, and topic or subject

- use an encyclopedia, dictionary, almanac, and atlas in print or electronic formats
- use the index or table of contents of a book, magazine, or reference set to locate specific information
- locate information from preselected Internet sites and web pages

B.4.4 Evaluate and select information from a variety of print, nonprint, and electronic formats

- preview selected resources using table of contents, index, and other simple scanning strategies
- differentiate between fiction and nonfiction resources
- distinguish between fact and opinion
- determine timeliness and validity of information sources
- recognize that graphics and images can be used to convey a message
- identify the sponsoring organization or author for all resources
- choose resources appropriate to their interests, abilities, and information need

B.4.5 Record and organize information

- take notes or record information in their own words
- record the sources of information as notes are taken
- recognize the need to identify the author of any information copied verbatim
- arrange notes to help answer the information problem or question
- organize information using simple outlining techniques
- list basic bibliographic sources for information used

B.4.6 Interpret and use information to solve the problem or answer the question

- identify new information and integrate it with prior knowledge
- determine if information is relevant to the information question
- select information applicable to the information question
- seek additional information if needed
- apply the information gathered to solve the information problem or question

B.4.7 Communicate the results of research and inquiry in an appropriate format

- identify the audience for the product or presentation
- identify whether the purpose of the product or presentation is to inform, entertain, or persuade
- recognize the three common types of communication or presentation modes (written, oral, visual)
- choose a presentation format (e.g., speech, paper, web page, video, hypermedia)
- develop a product or presentation to communicate the results of the research

B.4.8 Evaluate the information product and process

- review the criteria to be used in judging both the product (or presentation) and the process
- determine how well the product or presentation meets the original information need based on the criteria
- review the process based on the criteria
- suggest ways in which the process and product can be improved

BY THE END OF GRADE 8 STUDENTS WILL:

B.8.1 Define the need for information

- identify the information problem or question to be resolved
- relate what is already known to the information need
- formulate general and specific research questions using a variety of questioning skills
- revise and narrow the information questions to focus on the information need

B.8.2 Develop information seeking strategies

- identify relevant sources of information including print, nonprint, electronic, human, and community resources
- evaluate possible sources of information based on criteria of timeliness, genre, point of view, bias, and authority
- select multiple sources that reflect differing or supporting points of view
- identify and select keywords and phrases for each source, recognizing that different sources use different terminology for similar concepts
- organize ideas, concepts, and phrases using webbing, outlines, trees, or other visual or graphic tools
- focus search strategies on matching information needs with available resources

B.8.3 Locate and access information sources

- identify the classification system used in the school library media center, public library, and other local libraries
- locate materials using the classification systems of the school library media center and the public library
- use an on-line catalog and other databases of print and electronic resources
- recognize differences in searching bibliographic records, abstracts, or full text databases
- search for information by subject, author, title, and keyword
- use Boolean operators with human or programmed guidance to narrow or broaden searches
- use biographical dictionaries, thesauri, and other common reference tools in both print and electronic formats
- use a search engine to locate appropriate Internet or Intranet resources

B.8.4 Evaluate and select information from a variety of print, nonprint, and electronic formats

- examine selected resources for pertinent information using previewing techniques to scan for major concepts and keywords
- differentiate between primary and secondary sources
- distinguish between fact and opinion; recognize point of view or bias
- determine if information is timely, valid, accurate, comprehensive, and relevant
- analyze and evaluate information presented in charts, graphs, and tables
- locate indicators of authority for all sources of information
- select resources in formats appropriate to content and information need and compatible with their own learning style

B.8.5 Record and organize information

- use notetaking strategies including summarizing and paraphrasing
- record concise notes in a prescribed manner, including bibliographic information
- cite the source of specific quotations or visuals using footnotes, endnotes, or internal citation formats
- organize and compare information using graphic organizers, storyboarding, and other relational techniques
- organize information in a systematic manner appropriate to question, audience, and intended format of presentation
- record sources of information in a standardized bibliographic format

B.8.6 Interpret and use information to solve the problem or answer the question

- compare and integrate new information with prior knowledge
- analyze information for relevance to the question
- analyze findings to determine need for additional information
- gather and synthesize additional information as needed
- draw conclusions to address the problem or question

B.8.7 Communicate the results of research and inquiry in an appropriate format

- determine the audience and purpose for the product or presentation
- identify possible communication or production formats
- select a presentation format appropriate to the topic, audience, purpose, content, and technology available
- develop an original product or presentation which addresses the information problem or question

B.8.8 Evaluate the information product and process

- identify the criteria to be used in judging both the product (or presentation) and the process
- determine how well research conclusions and product meet the original information need or question based on the identified criteria
- assess the process based on identified criteria
- summarize ways in which the process and product can be improved

BY THE END OF GRADE 12 STUDENTS WILL:

B.12.1 Define the need for information

- state the information problem or question in clear and concise terms
- relate prior knowledge to the problem or question
- develop specific research questions or a thesis statement based on the nature, purpose, and scope of project
- conduct a preliminary search to determine if the research questions or thesis statement is clear and searchable; refine and revise if necessary

B.12.2 Develop information-seeking strategies

- identify a full range of appropriate and available information from local, national, and global sources
- determine and apply evaluative criteria to prioritizing potential sources
- pursue a variety of resources reflecting differing points of view, cultures, and disciplines
- identify and evaluate keywords, concepts, subject headings, and descriptors for each information source
- organize ideas, concepts, and issues in a manner appropriate to the subject and purpose
- develop a plan to obtain needed information using a variety of research and investigative strategies (e.g., interviews, questionnaires, experiments, surveys)

B.12.3 Locate and access information sources

- identify the different classification systems used in local school, public and post-secondary libraries, and resource agencies
- locate information using the classification system and catalog in use at a variety of libraries and resource agencies
- use increasingly complex organizational features of print and electronic resources such as cumulative and cross-database indexes
- use different search strategies for bibliographic citations, abstracts, and full-text resources in electronic formats
- construct effective electronic and manual searches using keywords, phrases, Boolean logic, and limiters
- determine when to use general or specialized print and electronic reference tools
- compare, evaluate, and select appropriate Internet search engines and directories

B.12.4 Evaluate and select information from a variety of print, nonprint, and electronic formats

- select information clearly related to the problem or question
- evaluate information for stereotyping, prejudice, and misrepresentation
- distinguish among fact, opinion, point of view, and inference
- determine if sources are authoritative, valid, reliable, accurate, relevant, and comprehensive
- evaluate graphic images for misleading presentation and manipulated data
- determine authorship for all resources and identify points of agreement and disagreement among sources
- select information in formats and genre most appropriate to content

B.12.5 Record and organize information

- use data-gathering strategies that include summarizing, paraphrasing, comparing, and quoting
- follow standardized notetaking processes and compile bibliographic information in an approved format
- credit sources for all quotations, visuals, major ideas, and specific facts or data using accepted citation formats
- analyze and relate information using a variety of relational techniques (e.g., graphic organizers, database reports, spreadsheet charts, graphs)
- organize information in systematic manner for unity, coherence, clarity, and emphasis
- compile a bibliography in a format stipulated by an accepted manual of style

B.12.6 Interpret and use information to solve the problem or answer the question

- interpret new information to formulate ideas which address the question or problem using comparison, evaluation, inference, and generalization skills
- synthesize new ideas, evidence, and prior knowledge to address the problem or question
- draw conclusions and support them with credible evidence

B.12.7 Communicate the results of research and inquiry in an appropriate format

- determine the audience and purpose for communicating the information
- compare strengths and weaknesses of possible presentation methods and products
- select the most appropriate format for the product or presentation
- develop a product or presentation that utilizes the strengths of the medium and supports the conclusions drawn in the research effort

B.12.8 Evaluate the information product and process

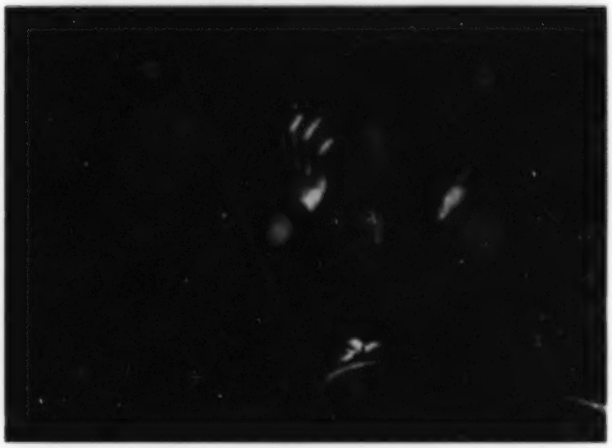
- establish the criteria to be used in judging both the product (or presentation) and the process
- assess how well the research conclusions and product satisfy the defined information need
- critique the process and identify steps which need further study, skill development, or practice
- evaluate how the research question or problem, search strategy, resources, and interpretation could have been expanded or modified

C. INDEPENDENT LEARNING

CONTENT STANDARD

Students in Wisconsin will apply information and technology skills to issues of personal and academic interest by actively and independently seeking information; demonstrating critical and discriminating reading, listening, and viewing habits; and, striving for personal excellence in learning and career pursuits.

Rationale: Independent learning is central to the effective use of information and technology for personal, career, and recreational choices. Skills in independent learning are developed and used in the classroom and are essential for participation in education beyond the formal structures of schooling. Students should be able to select, evaluate, and relate literature, media, and other creative expressions of information to their own experience. Independent learners will demonstrate self-motivation in identifying information needs, solving information problems, evaluating solutions, and developing personal goals.



PERFORMANCE STANDARDS

▶ *BY THE END OF GRADE 4 STUDENTS WILL:*

C.4.1 Pursue information related to various dimensions of personal well-being and academic success

- identify topics of interest and seek relevant information about them
- recognize that information can be used to make decisions or satisfy personal interest
- recognize that accurate information is basic to sound decisions

C.4.2 Appreciate and derive meaning from literature and other creative expressions of information

- choose fiction and other literature of personal interest
- recognize that award winning books reflect literary and artistic excellence
- relate literature and other creative expressions of information to personal experiences
- compare their own interpretations of literature and other creative expressions of information with those of others

C.4.3 Develop competence and selectivity in reading, listening, and viewing

- choose materials at appropriate developmental levels
- identify materials that reflect diverse perspectives
- differentiate among written, oral, and visual forms of literature
- recognize that media can be constructed to convey specific messages, viewpoints, and values

C.4.4 Demonstrate self-motivation and increasing responsibility for their learning

- contribute to group or classroom decisions about learning objectives
- identify topics suitable for independent learning or in-depth exploration
- apply prescribed criteria for judging success of learning projects
- establish goals and determine steps for completing a project
- assess progress and quality of work

BY THE END OF GRADE 8 STUDENTS WILL:

C.8.1 Pursue information related to various dimensions of personal well-being and academic success

- identify topics of interest and seek relevant information about them
- identify information appropriate for decision-making and personal interest
- recognize that accurate and complete information is basic to sound decisions in both personal and academic pursuits

C.8.2 Appreciate and derive meaning from literature and other creative expressions of information

- recognize that reviews, evaluations, and guidance from teachers, library media specialists, and others assist in the selection of appropriate literature and creative expressions of information
- identify and use personal criteria for choosing literature and other creative expressions of information
- relate literature and creative expressions of information to personal experiences
- relate literature and creative expressions of information to other literature or creative expressions of information

C.8.3 Develop competence and selectivity in reading, listening, and viewing

- choose materials at appropriate developmental levels
- identify and select materials that reflect diverse perspectives
- identify characteristics of common literary forms
- recognize how words, images, sounds, and illustrations can be constructed to convey specific messages, viewpoints, and values

C.8.4 Demonstrate self-motivation and increasing responsibility for their learning

- participate in decisions about group and classroom projects and learning objectives
- identify and select topics of personal interest to expand classroom learning projects
- recommend criteria for judging success of learning projects
- establish goals and develop a plan for completing projects on time and within the scope of the assignment
- evaluate progress and quality of personal learning
- establish personal goals in pursuit of individual interests, academic requirements, and career paths

BY THE END OF GRADE 12 STUDENTS WILL:

C.12.1 Pursue information related to various dimensions of personal well-being and academic success

- identify topics of interest and seek relevant information about them
- evaluate information for decision-making and personal interest
- recognize that accurate and complete information is essential to sound decisions in personal, academic, and career pursuits

C.12.2 Appreciate and derive meaning from literature and other creative expressions of information

- recognize that core lists of classics and recommended titles for precollege reading provide for a well-rounded literary background
- apply personal criteria for choosing literature and other creative expressions of information
- relate literature and other creative expressions of information to personal experiences
- compare and contrast examples of literature and creative expressions of information with other examples of literature and creative expressions of information

C.12.3 Develop competence and selectivity in reading, listening, and viewing

- choose materials at appropriate developmental levels
- identify and select materials that reflect diverse perspectives
- contrast characteristics of common literary forms
- evaluate how words, images, sounds, and illustrations are constructed to convey specific messages, viewpoints, and values to shape attitudes and influence action

C.12.4 Demonstrate self-motivation and increasing responsibility for their learning

- make decisions about group and classroom projects and learning objectives
- identify topics for independent study to meet individual learning needs and interests
- develop and apply criteria for judging success of learning projects
- establish goals, plans, budgets, and timelines for completing a project
- recognize gaps in personal knowledge and apply strategies for addressing them
- evaluate progress and quality of personal learning
- articulate personal goals in pursuit of individual interests, academic requirements, and career paths

D. THE LEARNING COMMUNITY

CONTENT STANDARD

Students in Wisconsin will demonstrate the ability to work collaboratively in teams or groups, use information and technology in a responsible manner, respect intellectual property rights, and recognize the importance of intellectual freedom and access to information in a democratic society.

Rationale: As a member of a community of learners, each individual's actions impact all members of that community. The workplace in the 21st century will be a collaborative environment requiring a high level of communication, problem-solving, and teamwork skills. The concept of the larger learning community suggests that all of us—students, teachers, administrators, parents, and other citizens—are interconnected in a lifelong quest to understand and meet our constantly changing information needs. The new learning community is not limited by time, place, age, occupation, or individual fields of study. Rather, this community is linked by mutual respect for the opinions and work of others; by interests and needs; by open and equitable access to information; and by a continually expanding and improving global telecommunications network.

PERFORMANCE STANDARDS

▶ *BY THE END OF GRADE 4 STUDENTS WILL:*

D.4.1 Participate productively in workgroups or other collaborative learning environments
- share information and ideas with others
- respect the ideas of others
- articulate workgroup goals and individual responsibilities within the group
- participate in the development of individual and workgroup tasks and priorities
- recognize that individual achievement is linked to the successful completion of workgroup projects
- complete workgroup projects to meet an established timeline
- review workgroup projects and suggest improvements

D.4.2 Use information, media, and technology in a responsible manner
- return all borrowed materials on time
- identify the school's rules on student use of the Internet and other resources
- demonstrate use of the Internet and other on-line sources consistent with the school's acceptable use policy
- employ proper etiquette in all forms of communication
- recognize that altering or destroying another person's program or file constitutes unacceptable behavior
- differentiate between copying and summarizing
- recognize that using media and technology to defame another person or group constitutes unacceptable behavior
- recognize the need for privacy of personal information

D.4.3 Respect intellectual property rights
- explain the concept of intellectual property rights
- describe how copyright protects the right of an author or producer to control the distribution, performance, display, or copying of original works
- recognize that the copying of commercial or licensed media is a violation of the copyright law
- identify violations of the copyright law as a crime for which there are serious consequences
- explain why the use of all or parts of another person's work requires prior permission or citation
- recognize that a quoted work must be stated in the author's exact words
- list sources quoted verbatim and visuals used in a presentation
- recognize that reports or articles they write must be put in their own words

D.4.4 Recognize the importance of intellectual freedom and access to information in a democratic society
- define the concept of intellectual freedom
- identify examples of censorship
- recognize the importance of free and open access to information for all citizens
- acknowledge the right of classmates to express opinions different from their own
- describe situations or conditions where information is repressed or restricted

BY THE END OF GRADE 8 STUDENTS WILL:

D.8.1 Participate productively in workgroups or other collaborative learning environments

- collaborate with others to identify information needs and seek solutions
- demonstrate acceptance to new ideas and strategies from workgroup members
- determine workgroup goals and equitable distribution of individual or subgroup responsibilities and tasks
- plan for the efficient use and allocation of time
- complete workgroup projects on time
- evaluate completed projects to determine how the workgroup could have functioned more efficiently and productively

D.8.2 Use information, media, and technology in a responsible manner

- return all borrowed materials on time
- describe and explain the school policy on technology and network use, media borrowing, and Internet access
- demonstrate responsible use of the Internet and other electronic resources consistent with the school's acceptable use policy
- recognize that using media and technology to defame or libel another person or group constitutes unacceptable behavior
- identify and define the consequences of violations to the school's policies on media and technology use
- recognize the need for privacy and protection of personal information

D.8.3 Respect intellectual property rights

- define the purpose of copyright and copyright law
- identify what kinds of works of authorship can be copyrighted
- explain the concept of "fair use" as it pertains to the copyright law
- recognize that the "fair use" provisions may differ depending on the media format
- relate examples of copyright violations
- cite the source for words which are quoted verbatim and for pictures, graphics, and audio or video segments which are used in a product or presentation
- explain and differentiate the purposes of a patent, trademark, and logo

D.8.4 Recognize the importance of intellectual freedom and access to information in a democratic society

- explain the concept of intellectual freedom
- identify examples and explain the implications of censorship in the United States and in other countries
- explain the importance of the principle of equitable access to information
- compare and contrast freedom of the press in different situations and geographic areas
- recognize that the free-flow of information contributes to an informed citizenry resulting in sound decisions for the common good

BY THE END OF GRADE 12 STUDENTS WILL:

D.12.1 Participate productively in workgroups or other collaborative learning environments

- collaborate with others to design and develop information products and solutions
- incorporate effective group processes and shared decision-making in project development
- specify and detail workgroup goals and individual and subgroup responsibilities
- finalize workgroup strategies, resources, budget, and timeline
- allocate time for a project based on an inventory of the responsibilities of workgroup members
- complete specific projects within a timeline and budget
- critique completed projects and workgroup processes for future improvement

D.12.2 Use information, media, and technology in a responsible manner

- return all borrowed materials on time
- assess the need for different information policies and user agreements in a variety of settings (e.g., private employer, university, government agency)
- demonstrate use of the Internet and other resources consistent with acceptable use policies
- recognize that using media or technology to defame, libel, or misrepresent another person or group constitutes unacceptable behavior
- identify and define consequences of violations to the school's policies on media and technology use
- recognize the need for privacy of certain data files or documents

D.12.3 Respect intellectual property rights

- explain the difference between copyright and copyright registration
- explain why "fair use" is permitted for educational purposes but not in "for profit" situations
- distinguish among freeware, shareware, and commercial software
- recognize the legal consequences of plagiarism and the need for personal authenticity in their work
- explain conditions under which permission must be obtained for the use of copyrighted materials
- describe how to correspond with authors, publishers, or producers to obtain permission to use copyrighted materials in their work

D.12.4 Recognize the importance of intellectual freedom and access to information in a democratic society

- summarize how the basic principles of democracy relate to intellectual freedom
- distinguish between intellectual freedom as it relates to children versus adults
- investigate a specific censorship situation (e.g., challenge to a book or magazine in a local library)
- recommend strategies for ensuring that others have equitable access to information, media resources, and technology
- project what conditions might result if intellectual freedom were ignored in their own community or in the United States

Summary

Media and Technology

- Use common media and technology terminology and equipment
- Identify and use common media formats
- Use a computer and productivity software to organize and create information
- Use a computer and communications software to access and transmit information
- Use media and technology to create and present information
- Evaluate the use of media and technology in a production or presentation

Information and Inquiry

- Define the need for information
- Develop information seeking strategies
- Locate and access information sources
- Evaluate and select information from a variety of print, nonprint, and electronic formats
- Record and organize information
- Interpret and use information to solve the problem or answer the question
- Communicate the results of research and inquiry in an appropriate format
- Evaluate the information product and process

Independent Learning

- Pursue information related to various dimensions of personal well-being and academic success
- Appreciate and derive meaning from literature and other creative expressions of information
- Develop competence and selectivity in reading, listening, and viewing
- Demonstrate self-motivation and increasing responsibility for their learning

The Learning Community

- Participate productively in workgroups or other collaborative learning environments
- Use information, media, and technology in a responsible manner
- Respect intellectual property rights
- Recognize the importance of intellectual freedom and access to information in a democratic society

Glossary of Terms

AASL (American Association of School Librarians). A division of the American Library Association, the oldest and largest library association in the world.

Abstract. A short summary in which the writer highlights all essential points of an article, book, or media resource.

Academic Standards. Standards that specify what students should know and be able to do (content), what they might be asked to do to give evidence of meeting standards (performance), and how well they must perform (proficiency).

Acceptable Use Policy (AUP). A school or organization's official policy statement regarding the use of the Internet or other computer networks.

Address. A name, group of numbers, or bits used to identify a specific device (e.g., server, printer, computer) on a network.

AECT (Association for Educational Communications and Technology). A major international professional association dedicated to the improvement of instruction through the effective use of media and technology.

Agent. A program that does things for a user like filtering e-mail and finding web sites to suit the users interests; also called an expert or intelligent agent.

ALA (American Library Association). The voice of America's libraries and the people who depend on them. It is the oldest and largest library association in the world with members in academic, public, school, government, and special libraries.

Analog. A signal that transmits information by modulating a continuous signal, such as a radio wave (see Digital).

Analog Signals. Signals that vary continuously by amplitude or frequency. Historically, older transmission systems, like the telephone service, have been analog, while most newer systems are digital in nature (see Digital).

Analyze. To determine the components of or separate into component parts; to divide into parts and determine the relation of each part to the other parts, or the whole.

Application. A computer or software program a user activates to perform a specific function or functions for the user; applications are often referred to as productivity software.

Artificial Intelligence. Computer software packages that try to emulate human intelligence in order to solve problems using reasoning and learning.

Attachment. A document or file appended or "attached" to an e-mail message. An attachment retains the formatting of the original provided the receiver has the same or compatible software on his/her computer that created the attachment.

Audio Conferencing. A conferencing system employing voice-only communications.

Bandwidth. The amount of the electromagnetic spectrum that a given signal occupies; usually expressed in kilohertz (thousands of hertz, or Khz) or megahertz (millions of hertz or Mhz). It may also refer to the amount of data that can be carried by a channel; usually expressed in bits per second.

Baud Rate. The speed of data transmission over telephone lines; approximately equal to bits per second. A measure of a modem's speed in terms of the amount of information that modem can transfer from one computer to another in one second.

BBS (Bulletin Board System). A computer that stores information and allows users to post and retrieve files to it by way of a modem or network connection.

Bibliographic Database. A database listing in which the information is presented as citations that include the author, title, publisher, publication date, and other publication facts.

Bibliographic Record. A listing of information received from a library or electronic database that can be brief (author, title, publisher, etc.) or full (abstract, summary, holdings information, and location).

Bibliography. A list of works such as books, articles, media resources, etc. on a particular subject, usually arranged alphabetically by author.

Binary Code. The base 2 numbering system comprised of the numbers 0 and 1. All computers are based upon this numbering system.

Bitmap. Any picture or image a user sees on a Web page. Bitmaps come in many file formats such as GIF, PICT, JPEG, etc. They can be read and edited by paint programs and image editors. As its name suggests, a bitmap is a map of dots or "pixels."

Bits (short for binary digit). The most basic, or smallest, unit in a computer system. In accordance with binary code, each bit is designated as either a 1 or a 0.

BPS (Bits Per Second). A measure of a modem's speed in terms of the number of bits that modem can transfer in one second; synonymous with baud rate.

Boolean Logic. A logic system used by computers that employs the words AND, OR, and NOT to increase search precision. The use of the word OR expands a search. The use of the words AND and NOT narrows a search.

Boolean Operators. AND, OR, and NOT are the most commonly used operators; used to increase the precision of an on-line or electronic search.

Boot. A term for turning on a computer and having it automatically load a set of software the computer requires to do all of its basic operations; sometimes also referred to as "booting up" a computer.

Bridge. A device similar to a gateway except it connects similar networks to one another and is normally programmed. A major advantage of bridges is that any type of protocols being used on the subnets can be forwarded whether they are TCP/IP packets, OSI packets, or whatever.

Broadcast. Television and radio signals designed to reach a mass audience. In Internet technology, broadcasting (also called "push" technology) is like e-mail. When you log on to a computer there will likely be e-mail waiting for you. Broadcasting uses sophisticated software or "agents" that will operate in the background, search and retrieve information needed by the user, and place that information in a mailbox or directory on the user's computer.

Browser. A software program used to view World Wide Web pages; also called a web browser. Currently, the two most popular web browsers are Netscape Navigator and Microsoft's Internet Explorer.

Byte. A combination of 8 bits. One byte represents a single letter, symbol, or number between 0 and 9. Hard disk and other storage devices and a computer's RAM (random access memory) are measured in thousands of bytes (kilobytes), millions of bytes (megabytes), or billions of bytes (gigabytes).

Cable Modem. A modem that uses two cable TV channels to establish a two-way flow of computer information over the coaxial cables used to bring cable TV into the home or business.

Cache. In a computer or local area network this refers to the amount of RAM (random access memory) set aside to hold data that may be frequently accessed again. Data in a cache will be retrieved much faster than data which must be read from a storage medium or device.

CAD/CAM (Computer Assisted Design/Computer Assisted Manufacturing). A computer software drawing program designed to create visual representations in color, according to scale, and in multiple dimensions.

Call Number. A unique letter/number combination assigned to each book or media resource in a library used to identify its location on the shelves.

Capture. Saving a file to your computer from a remote system. Capturing data, graphics, sound, or video files allows the user to listen, view, or print on-line data at a later time.

CATV (Cable Television). The term originally stood for community antenna television.

CD-ROM (Compact Disc-Read Only Memory). A computer storage medium similar to the audio CD which can hold more than 600 megabytes of read-only digital information.

CESA (Cooperative Educational Service Agency). A nonprofit organization based on contiguous school districts in a geographic area of the state, created by the Wisconsin Legislature to address educational needs by sharing the cost of services. Wisconsin currently has 12 CESAs which provide a variety of services to the school districts in their areas.

Channel. In data communications, a one-way path along which signals can be sent between two or more points. In telecommunications, a transmission path between two or more points provided by a common carrier.

Chat. Communication between members of an on-line service using text. The messages are sent between users in real time as in a conversation by typing in short statements.

Citation. A reference or a note referring to a document or file from which text is quoted.

Classification. The process of arranging and assigning unique codes or numbers to print, nonprint, or electronic materials according to their subject, format, or any other legitimate method in a logical sequence.

Client. A software application on a computer or terminal that allows the user to extract some service from a network server.

Codec (Coder/Decoder). An electronic device that converts standard television signals into compressed digital signals for transmission. The same device can convert incoming compressed digital signals back into viewable television signals.

Command. An instruction given by a computer user (most often by pointing at menu options on the monitor screen using a mouse or by typing a certain function key or keyboard sequence) in order to complete a certain task or operation.

Common Carrier. A government-regulated private company that furnishes the public with telecommunications services (e.g., phone companies).

Communication Software. A program that connects you to another computer or network in order to communicate with that computer or network.

Compressed File. A computer file that has been reduced in size through a compression software program. The user must decompress these files before they can be viewed or used.

Compressed Video. A method of sending video signals using less bandwidth than normal by transmitting only changes in moving frames rather than full motion. The reconstituted image exhibits some motion and depending on the available bandwidth and capacity of transmitters and receivers, the motion may appear somewhat irregular. This effect occurs in compressed video technology because the moving areas of the image are only approximated.

Computer Catalog. A computerized listing that enables users to access the record of holdings of a particular library, library network, or information agency or service.

Concentrator. Another term for a networking hub (see Hub).

Conference. A meeting of individuals for consulting or discussion on topics of common interest.

Connect Time. Usually this term refers to the amount of time that a terminal or computer has been logged on to a computer or server for a particular session.

Content Standard. Refers to what students should know and be able to do.

Contrast Ratio. The ratio of brightness between the white and black areas of an image.

Copyright. The property right granted by a government to the originator (e.g., author, organization) of an intellectual property to reproduce, copy, print, duplicate, publish, sell, and distribute any section or part of an existing original work (e.g., book, article, video program).

Copyright Registration. The process of applying for and obtaining formal U. S. Copyright Office acknowledgment of copyright.

CPU (Central Processing Unit). Another name given to a computer. CPU usually denotes the box that contains the microprocessor, power supply, and disk drives.

Creative Expressions of Information. Creative or artistic works in a variety of media formats or creative or artistic productions and presentations (e.g., plays, exhibitions, concerts).

Curriculum. The program devised by local school districts used to prepare students to meet standards. It consists of activities and lessons at each grade level, instructional materials, and various instructional techniques. Curriculum specifies the details of the day-to-day schooling at the local level.

Cursor. The pointer on the screen whose position you control by moving a mouse or other input device.

Cut, Copy, and Paste. A set of computer commands that allow sections of documents or graphics to be moved from one place to another within a document or from one document to another.

Cyberspace. The collection of computers located on multiple networks that communicate with other computers across the Internet.

Database. A collection or listing of information, usually organized with searchable elements or fields. For example, a library catalog can be searched by author, title, or subject.

Dedicated Line. A leased or private line is a communication line used exclusively by one customer.

Default. A setting that a computer system uses automatically, unless otherwise changed by the user.

Definition. The sharpness or resolution of a picture or graphics image.

Descriptor. A synonym for a subject heading or keyword.

Desktop. The background area on a computer screen which usually contains an icon for the hard drive and trash can (used to remove files). Folders, files, applications, and a working document may also appear on the desktop window.

Desktop Conferencing. The process by which an individual or small group uses a personal computer, small video camera, microphone, and special software to "teleconference" or communicate with another individual, individuals, or small group via the monitors and speakers of personal computers.

Desktop Publishing. The process of using a computer and special software to produce a document with complex formatting and layout styles such as newsletters, brochures, and ad copy.

Dial-Up. To open a connection between a user's computer and another computer via a modem.

Dialog Box. A computer screen window that asks a question or allows users to input information.

Digital. Signal based on a binary code in which information is sent as a series of "on" and "off" signals (or 1s and 0s). It is more precise and less subject to interference than an analog signal (see Analog).

Digital Signals. Signals which consist of a series of discrete elements that have only one value at a time. Digital transmission systems are the heart of most modern communication systems (see Analog).

Directory. A list of files or documents on a computer or a published material that has a listing of names, addresses, phone numbers, and other useful material.

Discussion Group. A group of people who exchange messages about particular topics; often associated with newsgroups.

Distance Learning or Education. Instruction that takes place using telecommunications technologies even though teacher and students are geographically separated. Telecommunications technologies link them on an interdistrict, interstate, intrastate, or international basis.

DOA (Wisconsin Department of Administration). An executive branch agency in Wisconsin that provides leadership to state agencies in fiscal and budget policy, information technology policy and planning, state energy planning, intergovernmental relations, and state procurement activities. DOA provides state agencies with services in telecommunications, mainframe, and related information technologies; print, mail and records management; and state building design, construction, and maintenance.

Document. What a computer user creates with an applications program. Documents store information that the user has inputted using an application software program.

Domain Name. The address or URL of a particular website.

Downlink. The portion of a satellite circuit extending from the satellite to an earth station.

Download. The electronic transferring, or copying, of a file from one computer to another. Files may be downloaded from another connected individual computer, from a computer network, a commercial on-line service, or from the Internet.

DPI (Wisconsin Department of Public Instruction). The official state agency charged with providing direction and technical assistance for public elementary and secondary education in Wisconsin. It offers a broad range of programs and services to local school administrators and faculty. The department distributes state school aids, administers federal program funds that supplement local tax resources, develops curricula, recommends policy for effective school operations, ensures education for children with disabilities, and develops school and public library resources.

Drag. To move a file or folder by holding the mouse button down while simultaneously moving the mouse. Dragging a file or folder provides the computer user with a convenient way to move and organize information.

Drill-and-Practice. A type of computer software meant to supplement the introduction of new material by a classroom teacher. After the introduction of new concepts and ideas, this computer software provides regular review and practice by students of basic concepts and skills.

Driver. A computer program used to control external devices or run other programs. For instance, printers require special driver software programs to control them from a computer.

DVD (Digital Video Disk). A digital storage medium the same physical size as a CD-ROM disk that can store massive amounts of data including graphics and full motion video.

Dynamic Range. The highest and lowest signal levels of a specific audio or video device.

E-Mail (Electronic Mail). A message that is sent electronically from the computer of one person to the computer of another person.

ECB (Wisconsin Educational Communications Board). A state agency that plans, develops, constructs, and operates statewide public radio, public television, and educational communication systems.

Electronic Literacy. The ability to search, retrieve, organize, employ, and evaluate information derived from electronic information resources.

Encyclopedia. A general reference source (print, nonprint, or electronic) that contains information on all subjects or is limited to a specific subject.

Equity. In the context of instructional technology, refers to the availability of instructional technology to all students regardless of socioeconomic status, culture, locale, gender, age, or race.

Ergonomics. Design principles for tools, workstations, furniture, etc., relating to the comfort, efficiency, and safety of users.

ETN (Educational Teleconference Network). A statewide instructional telephone network managed by the Instructional Communications Systems (ICS) of the University of Wisconsin-Extension.

Expansion Card. A circuit board or card that when inserted into a computer allows that computer to perform an additional function or functions.

Expansion Slot. Physical slots or sets of pins inside a computer where expansion cards may be installed to enhance a computer's capacity or enable that computer to perform additional functions.

Expert System. A program that does things for a user like filtering e-mail and finding web sites to suit the users interests; also called an intelligent agent or agent.

Facsimile Machine (Fax). An electronic device that transmits written or graphic information over telephone lines to other locations.

Fair Use. Provisions in the U. S. Copyright Code providing for limited use of copyrighted materials for educational purposes.

Fax. A telecommunications device used to send facsimiles of documents over telephone lines to other fax machines or computers. Fax machines use a combination of photocopier and modem technologies (see Facsimile Machine).

Fiber Optics. A technology for transmitting voice, video, and data via light over thin fibers of glass. This technology has much greater bandwidth capacity than conventional cable or copper wire.

Field. A database term for a specific area of a bibliographic or database record containing specific identifying characteristics of an item (e.g., date field, name field, or author field).

File Compression. Software that makes files smaller than their original size so they take up less space on a disk or other storage medium.

File Server. Computers with large storage devices on a network that store files and software that can be shared by users on the network (see Server).

File Sharing. The ability to share files with other computers on the same network.

File. Information, often a document or an application, saved on a disk or other storage medium.

Footer. The bottom portion of a word processing page that typically contains information such as source or destination, page numbers, date, time of origination, etc. (see Header).

Footprint. The region on the earth to which a communications satellite can transmit.

Frame. A single, complete picture in a video recording.

Freeware. Software, usually available via the Internet or other on-line service, that is free to download and use by individual computer owners. Freeware is not always free for organizations or agencies that may want to use the product, however.

Frequency. The number of cycles per second of an electromagnetic transmission, usually described in hertz.

Frequency Response. The frequency range over which signals are reproduced within a specific amplitude range. The frequency response of the human ear, for instance, is from about 20 to 20,000 hertz (Hz).

FTP (File Transfer Protocol). A standard protocol for sending computer files from one computer to another on the Internet.

FTP Site. A computer dedicated to the storage of files, usually organized by subject, that can be accessed through anonymous FTP or e-mail.

Full-Text Database. An electronic information resource or database that contains entire documents.

Gateway. A device connecting two dissimilar networks that adds security, flow control, and protocol conversion. Gateways typically handle protocol conversion operations across a wide spectrum of communications function or layers, and they require software programming and central management.

Genlock. A device that synchronizes one video source with another for mixing and recording.

Genre. A distinctive type or category of literary composition, such as poetry, essay, short story, etc.

GIF (Graphic Interchange Format). A widely used format for image files.

Gigabyte. One billion bytes.

Graphing Calculator. A calculator with a larger than average screen that provides a visual representation of plotted data.

GUI (Graphical User Interface). An alternative to character-based computer interfaces, such as MS-DOS. The Macintosh OS and Microsoft Windows are two popular examples of GUI's.

Hardware. Physical equipment components or devices.

Header. The top portion of a word processing page that typically contains information such as the source or destination, chapter title, length of message, date, time of origination, etc. (see Footer).

Hertz. A unit of frequency equal to one cycle per second (cps). One kilohertz equals 1,000 cps; one megahertz equals one millions cps; one gigahertz equals one billion cps.

Hits (Matches). Terms used to describe the locating of relevant information that corresponds to specific search terms.

Home Page. The first or introductory page that appears when accessing a World Wide Web site. The home page often provides the table of contents to a specific website.

Hotlist. A list of frequently accessed, popular, or best World Wide Web sites on a single topic or subject.

HTML (HyperText Markup Language). The computer language used to design, or write World Wide Web pages or websites.

HTTP (HyperText Transfer Protocol). The means or computer protocol by which people using the World Wide Web and web servers communicate with one another.

Hub. An equipment piece that connects two or more devices together in order for them to communicate on a network.

Hypermedia. A software program that contains dynamic links to other media, such as audio, video, or graphics files. The World Wide Web is made up of hyperlinked web pages.

Hypermedia Program. A software program that provides dynamic links and seamless access to text, graphics, audio, and video images.

Hypertext. A system of writing and displaying text that enables the text to be linked at several levels of detail, and to contain links to related documents or sites. Hypertext is key words or phrases in a WWW page that are "linked" electronically to other websites or pages on the Internet.

Icon. A symbol that provides a visual representation of an action or other information. For example, a representation of an arrow on a computer screen or desktop is often used to denote directional movement (forward or back) in many software programs. Clicking on the arrow with a mouse will take the user in the direction indicated by the arrow.

ILS (Integrated Learning System). A complete software, hardware, and network system used for instruction. In addition to providing the curriculum and lessons organized by level, an ILS usually includes a number of tools such as assessment components, record keeping, and user information files that help to identify learner needs, monitor progress, and maintain student records.

Information. Knowledge communicated or received concerning a particular fact or circumstance; facts, data, images, or sounds which may be unorganized or even unrelated.

Information Literacy. The ability to access, evaluate, and use information from a variety of sources.

Initialize. A means of preparing a disk to receive information by organizing its surface into tracts and sectors; same as formatting a disk. Initializing a disk that already holds information will erase the information.

Installer. A program used to update or install software.

Interface. The way in which a computer communicates with external devices or with the user (e.g., printer interface, human interface, user interface).

Intellectual Property Rights. The concept that the creator of an idea or expression of an idea in any format retains ownership of that idea or expression.

Interlibrary Loan. A service provided by many libraries and information agencies that enables a user to obtain copies of articles and borrow books and other media materials from other libraries and information centers.

Internet. The huge world-wide network or "network of networks" of government, business, and university computers. Currently, there is only one Internet, but due to the huge (and growing) numbers of sites coupled with slow access speeds, others are being planned.

Interoperability. The ability to connect to and exchange data with other hardware and software systems.

IP (Internet Protocol). A common layer or protocol used on the Internet to connect dissimilar networks.

Intranet. A private network inside a company or organization that uses the same kinds of software that you would find on the Internet, but that it is only for internal use.

I/O (Input/Output). The processes involved in transferring information into or out of a central processing unit or computer.

ISBN. (International Standard Book Number). A 10-digit unique number assigned to each book published to identify the publisher, title, edition, and volume.

ISSN (International Standards Serial Number). A distinctive number assigned to a serial publication.

ISTE (International Society for Technology in Education). A major international professional association for computer and technology educators, MIS (Management Information Systems) professionals, and technology directors and coordinators.

Journal. A periodical publication that contains scholarly articles written by professionals, researchers, and other experts in a particular field.

JPEG (Joint Photographics Experts Group). A common computer file format for images.

K (Kilobyte). 1,024 bytes (see Byte).

Kilohertz. 1,000 hertz.

Keyword. A significant identifying word from the title, subject, or content of a particular document or file.

Keyword Searching. In a search, using significant words that describe a subject under which entries for all documents or publications on the subject are filed in a catalog, bibliographic record, or electronic resource.

kHz (Kilohertz). Unit of measurement of frequency or cycles per second; equal to 1,000 hertz.

Knowledge. The acquaintance with facts, truths or principles as the result of a study or investigation; familiarity with a particular subject or branch of learning; an organized body of information or the comprehension or understanding consequent on having acquired or organized a body of facts.

LAN (Local Area Network). A number of computers and other peripheral devices connected to a file server for the purpose of sharing resources, such as software applications, files, peripherals, and services. A LAN usually refers to a network in one room or building.

Laserdisc. A plastic disk or platter that can have text, video, and graphic images encoded in a series of microscopic pits engraved in the disk; also known as a videodisc. Laserdiscs are read by special players which transmit a laser beam onto the disks.

LCD (Liquid Crystal Display). A popular presentation technology in flat panel display systems used in conjunction with overhead projectors (LCD projection panels); also used in laptop computer screens and in video/data projectors.

LEA (Local Educational Agency). The official designation or title of a local school district in Wisconsin.

Limiters. Words or terms that limit or "narrow" a search of an electronic or on-line database or service.

Link. A connection from one place or medium to another. For example, button or underlined print that when clicked on takes you to another website or page on the Internet.

Listserv. A powerful software program for combining and automating mailing lists and discussion groups on a computer network or the Internet. A form of one-to-many communication using e-mail.

Log In or Log On. The process of establishing a connection over a network or modem with a remote computer so that the user's computer may exchange information.

Log Off. The process of terminating a connection to an computer or network.

Logo. A name, symbol, or trademark of a company or publication borne on one printing plate or piece of type. Today, a logo would be created and printed with a computer and graphics or desktop publishing software.

Macro. A program within a program that allows complex functions to take place with a single keystroke or simple combination of keystrokes.

Magazine. A periodic publication which contains articles, news, advertisements, etc.

Manual of Style. A guide prescribing rules for writing papers and reports including the elements and sequence to be used for citations and bibliographies. Recent manuals of style include information on citations for Internet and electronic resources.

MARC (Machine Readable Cataloging). A standard developed by the Library of Congress and others to define the elements (fields) within a bibliographic record.

Master. The original video or audio recording, as opposed to a dub or copy.

MB (Megabit or Megabyte). 1,000,000 bytes (see Byte).

Media. Formats (e.g., CD-ROM, newspapers, laserdiscs, magazines, films, the Internet) of communication that can be grouped as print, nonprint, or electronic.

Media Literacy. The ability to conduct a critical analysis of images and the sounds, special effects, and text that accompany them. Media literacy also aims to provide students with the ability to create media and multimedia products for specific purposes and audiences.

Media Retrieval Network. An audio and video network for sending and receiving analog audiovisual resources to a remote site, normally a classroom or large group instruction area.

Megabyte. 1 million bytes.

Microfiche. A flat sheet of plastic containing microimage information on a particular subject and requires a microfiche reader or printer for accessing its content.

Microforms. Any materials, film or paper, printed or photographic, containing microimages which are units of information; such as, a page of text or graphics, too small to be read without magnification.

Microwave. High frequency radio waves used for audio, video, and data transmissions; requires clear line of sight between the transmitter and the receiver.

MIDI (Musical Instrument Digital Interface). A standard for communicating information between synthesizers, sequencers, percussion machines, computers, and other electronic musical equipment.

MIPS (Millions of Instructions Per Second). A measure of computer performance.

Modem (Modulator/Demodulator). An electronic device that attaches to a computer and enables it to transmit and receive data from another computer over a telephone line by converting the digital data into sound.

Monitor. A device that is connected to a computer and used to display text and graphics. Monitors are similar to television sets, but use a digital signal rather than an analog signal like television receivers.

Mouse. A pointing and input device that allows the user to control the movement of the cursor to any area of the monitor screen.

MPEG (Motion Picture Experts Group). A digital video file format commonly used on the World Wide Web.

MS-DOS (Microsoft Disk Operating System). The operating system designed for the original IBM and IBM-compatible personal computers.

Multimedia. A general term that usually refers to nonprint media that uses a combination of sound, video, animation, pictures, and text.

Multiplexer or MUX. A device that combines two or more signals into a single composite data stream for transmission on a single channel.

Multitasking. The ability to run more than one program at a time on a computer.

Navigate. To move around on the World Wide Web by following hypertext paths from document to document on different computers linked to the WWW and Internet.

Netiquette. The rules of conduct for on-line or Internet users.

Network. Two or more computers that are interconnected in some fashion so that users can share files and devices (e.g., printers, servers, storage devices).

Newsgroups. A part of the Internet that allows users to "post" and "reply to" messages from other users. Newsgroups are the basic unit of organization on the USENET bulletin board of the Internet. Newsgroups are independent discussions on a specific topic.

Node. A termination point for two or more communications links. In local area networks it also refers to a computer or single PC on a network.

Noise. In audio, electrical interference or unwanted sound. In video, this interference appears as "snow" on a television set or monitor.

Nonprint Media. Audio and video formats of communication (e.g., films, video tapes, audio cassettes). The three types of media formats are print, nonprint, and electronic.

OCLC (On-line Computer Library Center). Located in Dublin, Ohio, and is an international bibliographic utility used by libraries for cataloging, interlibrary loan, acquisitions, and other related services. Over 10,000 libraries in 40 countries are members of OCLC.

On-line. The state a computer is in when it is connected to another computer or server via a network; a computer communicating with another computer.

On-line Catalog. A computerized listing that enables users to access the record of holdings of a particular library, library network, or information agency or service.

OPAC (On-line Public Access Catalog). An on-line information retrieval system that helps users access the holdings of a library or other information agency.

Open. A command that makes a file available so that a user can modify its contents, display it on screen, or send its contents to a printer or other network device for output.

Operating System. The program that organizes and manages the internal activities and functions of a computer and peripheral devices.

OS (Operating System). The operating system or system management program of a computer (see Operating System).

Packet. A unit of data that is transmitted at the network layer. It is also commonly used to denote an envelope of data bundled with addressing information for transmission over a network.

Password. A secret combination of letters and other symbols needed to log in to a computer system.

Patent. An official document issued by a government granting an inventor (individual or organization) the right to make, produce, and manufacture an invented material for a given number of years.

PC (Personal Computer). Before the arrival of the IBM-PC, most PCs were called microcomputers. After the arrival of the IBM-PC, the term PC came to be applied to all personal computers, even those not produced by IBM.

Performance Standard. Tells how students will show that they are meeting a content standard.

Peripheral Device. A device outside the user's computer (e.g., modem, disk drive, printer) that is connected to and under the computer's control.

Pixel. A single dot or point of an image on a computer screen. Pixel is a contraction of the words "picture element."

PK-12. Elementary, middle, and secondary schools ranging in grades from pre-kindergarten to grade 12.

Port. An interface on a computer, terminal, network, or other electronic device for the transferring of data; also a point of access into a communications switch.

Primary Source. First-hand information or information in original or first-published format.

Proficiency Standard. Indicates how well students must perform on a content standard.

Program. A set of instructions describing operations for a computer to perform to accomplish a task. Computer programs are commonly referred to as software (see Software).

Projection System. A large screen system to show video, television, or computer images.

Proprietary. Belonging to a single corporation or agency. In the context of technology, proprietary usually refers to a set of protocols used by only one or a limited number of companies, as opposed to standards that are shared by a large part of a particular industry.

Protocol. A standard set of procedures that regulates how computers communicate and exchange information.

Pull-Down Menu. A menu (commonly found in the menu bar) whose name and/or icon is shown. Essentially, a user pulls down the menu by pointing at, pressing down the mouse button, and dragging the mouse until he/she reaches the option to be selected and then releasing the mouse button.

Pull Technology. In reference to the Internet or other online services, pull technology is where users, utilizing software such as a web browser, are required to locate and "pull down" the information for themselves.

Push Technology. In reference to the Internet or other online services, push technology is like e-mail. When you log on to a computer there will likely be e-mail waiting for you. Push technology uses sophisticated software and "agents" that will operate in the background, search and retrieve information needed by the user, and place that information in a mailbox or directory on the user's computer. Also known as broadcasting.

QuickTime. An integrated, cross-platform architecture for multimedia production and playback developed by Apple Computer, Inc.

RAM (Random Access Memory). The memory the computer uses to temporarily store information that the microprocessor needs to operate a computer program. The amount of RAM determines the number of programs that can be open on a computer simultaneously.

Real Time. Communication where information is received at (or nearly at) the instant it is being sent.

Receive Site. A location that can receive transmissions from another site for distance learning.

Repeater. A device that boosts an electrical signal thus increasing the transmission distance possible.

Research. Careful study, investigation, and experimentation aimed at discovering or interpreting facts to create new knowledge or understandings on the part of the researcher.

Resolution. The clarity or graininess of a video or computer image as measured by lines (of resolution) or pixels; the smallest resolvable detail in an image.

ROM (Read-Only Memory). ROM stores special instructions that the computer needs in order to operate properly. As the name implies, information stored in ROM is never changed, only read as needed by the computer.

Router. A hardware module and component of a network which receives transmissions and forwards them to their intended destinations by the shortest route possible.

Save. Storing information by transferring it from main memory (RAM) to a disk or other storage medium or device.

Satellite Dish. A dish-like device for sending and/or receiving signals from a satellite.

Scan Rate. The speed with which the electron beam scans the picture tube.

Scanner. A device that converts a printed page or image into an electronic representation that can be viewed and manipulated on a computer. Scanners are often used to convert photographs into electronic representations so that they can be included in documents created on a computer.

Scroll. Using scroll arrows, scroll bars, or scroll boxes allows a computer user to move vertically or horizontally within a window thereby enabling the user to view more of a document or directory.

SEA (State Education Agency). The agency primarily responsible for the state supervision of public elementary and secondary education. In Wisconsin, this is the Department of Public Instruction.

Search Engine. An Internet site and software program that allows for keyword searching of on-line information.

Search Strategy. The organized plan by which an on-line user conducts a search of an electronic information resource. It usually involves the use of Boolean operators to increase search precision.

Secondary Source. Information contained in, or taken from, general or compiled published sources.

Serial. A publication that is issued in successive pieces and intended by its publishers to continue indefinitely.

Server. A central computer with special software that provides services to other computers on a network (see file server).

Service Provider. An organization that provides network access to users via modem or some sort of high capacity network connected via coaxial or fiber optic cable.

Session. A period during which a connection exists between two points in a network so that commands or data may be exchanged.

Shareware. A category of software usually available over the Internet or other on-line services that is shared by publishers with the general public. Shareware is not free. Publishers ask that if you like the product and plan to use it, you send the author the required fee. The collection of shareware fees is based largely on the honor system.

Signal-to-Noise Ratio. A measurement of noise introduced in an audio component expressed as the difference in decibels between the desired signal and the unwanted noise.

Simulation. A software program that imitates reality, involves a realistic setting, and presents students with a problem or series of problems and choices. The program presents students with opportunities for inquiries, actions and decisions, and shows them how their actions and decisions change the way the simulation evolves. The best simulations allow students to control events that are realistic, making decisions with consequences that teach them actual, probable outcomes they may encounter in real life.

Software. A set of instructions, procedures, and related documentation on a disk, file, or CD-ROM which when input into a computer cause it to perform certain actions or functions.

Still Frame. A single frame of video information; sometimes called a freeze frame.

Storage Device. An equipment item, like a hard disk drive, in which digital information (voice, video and data) can be recorded and stored for future use.

Storage Medium. A media item, like a diskette, CD-ROM, or laserdisc, on which digital information (voice, video, and data) can be recorded and stored for future use.

Switch. A hardware device that routes packets of information across a network.

Synthesize. To combine the parts or elements so as to form a coherent whole; to combine so as to form a new, complex product.

Synthesizer. An electronic device for creating musical sounds and sound effects.

TCP/IP (Transmission Control Protocol/Internet Protocol). A protocol for the transmission of electronic data from one computer to another. TCP/IP is currently the de facto transmission protocol for the Internet.

Technology. The application of knowledge, tools, and skills to solve practical problems and extend human capabilities. Technology is best described as a process, but it is more commonly known by its products and their effects on society.

Technology Literacy. The ability to use, manage, and understand technology.

Telecommunications. The exchange of voice, video, or data through digital or analog electromagnetic or electronic signals (e.g., radio, telephone, television, facsimile, computer/modem).

Teleconference. Communication via audio, video, or computer between two or more groups in separate locations.

Thesis Statement. A position or proposition which is advanced and is to be supported by information and evidence.

Throughput. The rate at which data may be transferred from one computer to another via some sort of electronic medium. Usually measured in bits per second, kilobytes per second, or megabytes per second.

Topology. The physical layout of a network. It refers to the way in which transmission technologies are interconnected to form a complete system.

Track. The location or path of a recorded signal on a tape or disk.

Trademark. A name, symbol, word, figure, letter, or mark adopted and used by a manufacturer, business firm, or agency in order to designate the products the firm manufactures or sells and to distinguish them from other products. Any trademark is entitled to be registered under the provisions of a government statute so that it can only be used by the firm who registered it.

Transponder. The equipment on a satellite that receives the signal, amplifies it, and then retransmits it to receiving stations on the earth.

Trees. A visual method of linking information that follows a tree-like pattern with major concepts as trunk, limbs, branches, and leaves as extensions or sub-units of main concepts.

Tutorial. Software that attempts to present new concepts and information to students and then helps them to understand the concepts and develop skill in using them. The program provides periodic checks on a student's progress and will then "branch" them to the appropriate next step in the learning process. Sometimes, this means a student will advance to a higher level, or be sent back in the program to review concepts or skills that should have been previously learned.

Uplink. The portion of a satellite circuit or a satellite dish which transmits signals from a ground station to the satellite.

Upload. To send a file to another computer or server.

URL (Uniform Resource Locator). The address and method used to locate a specific resource or single document on the World Wide Web or Internet.

User ID. A unique number or name or both that is associated with a user name on a server system.

User Interface. The system of computer screen images, devices, and software components that allow the user to interact with and control the computer's operating system. Graphical user interfaces (GUI) allow the user to interact with the OS by manipulating icons or visual menus via a mouse. Command-line interfaces allow user to interact with the OS by entering commands from the keyboard.

VCR. Abbreviation for videocassette recorder, a device used to record and play video programs.

Version. In reference to computer software programs, a number that states a program's chronological position relative to old and new releases of the program.

Video Adapter. A board or card that plugs into a slot connected to the computer's main circuit board and allows the computer to display text and graphics on a monitor.

Video Conferencing. Using video and audio signals to link participants at different and remote locations for a specific purpose.

Virtual Memory. A function that allows a computer to use a specified amount of hard disk space as if it were RAM.

Virtual Reality. Highly realistic computer simulations that use 3-dimensional displays to create the impression of being inside a place.

Virus. A destructive type of computer program that attempts to disrupt the normal operation of a computer, rewrite, or delete information from storage devices, and in some cases, cause physical damage to the computer.

Virus Detection Program. A software program to detect, diagnose, and destroy computer viruses.

Visual Literacy. The ability to recognize and understand ideas conveyed through visible actions or images.

WAN (Wide Area Network). A network of LANs (local area networks) linked by backbone cabling for the purpose of electronically connecting several sites or buildings.

WASL (Wisconsin Association of School Librarians). A division for school librarians in the Wisconsin Library Association (see WLA).

WAV. A common sound file format often used in conjunction with the World Wide Web.

Web Page. A single on-line document or screen containing information that can be accessed over the World Wide Web (WWW).

Webbing. A visual method of linking ideas to one another in a web-like pattern.

Website. An entire location or site of a business, agency, organization, or individual on the World Wide Web. A website may consist of several web pages.

WECB (Wisconsin Educational Communications Board). A state agency that plans, develops, constructs, and operates statewide public radio, public television, and educational communication systems.

WEMA (Wisconsin Educational Media Association). The largest K-12 library media and educational technology association in Wisconsin.

Window. A computer monitor's screen or portion of the screen that displays information on the desktop. Windows enable the user to view the contents of disks as well as to create and view documents. Most windows include scroll bars that allow the user to move up and down and right or left in a document and buttons that allow you to close the window or make the window smaller or larger.

Windows. A graphical user interface (operating system) for IBM and IBM-compatible personal computers. Windows is a product of Microsoft Corporation.

WISTE (Wisconsin Society for Technology in Education). A professional association in Wisconsin for computer and technology educators and coordinators.

WLA (Wisconsin Library Association). The largest library association in Wisconsin with members from academic, public, school, and special libraries.

Workstation. A device, often a personal computer, that serves as an interface between a user and a file server or host computer.

World Wide Web. A web-like interconnection of millions of pieces of information and documents located on computers around the world. Web documents use a hypertext language which incorporates text, sound, and graphical images and "links" to other documents and files on Internet-connected computers. The WWW allows for "point-and-click" navigation of the Internet.

WPM (Words Per Minute). Refers to the number of words a student can type or keyboard in one minute.

Bibliography

American Association of School Librarians and the Association for Educational Communications and Technology. AASL/AECT National Guidelines Vision Committee. *Information Literacy Standards for Student Learning* Draft #5. Chicago, IL: AASL; Washington, DC: AECT, 1996.

Bellingham Public Schools. *Elementary Student Technology Outcomes*. (On-line) Available http://www.bham.wednet.edu/elmankat.htm, December, 1997.

Bellingham Public Schools. *Middle School Student Technology Outcomes*. (On-line) Available http://www.bham.wednet.edu/msmankat.htm, December, 1997.

Bellingham Public Schools. *High School Student Technology Outcomes*. (On-line) Available http://www.bham.wednet.edu/hsmankat.htm, December, 1997.

Donohoe, Alycia, et. al. *Making Sense of Technology Terminology for Adult Literacy: A Glossary and Annotated Bibliography*. Philadelphia, PA: National Center on Adult Literacy. University of Pennsylvania, 1995.

Eisenberg, Michael B. and Doug Johnson. "Computer Skills for Information Problem-Solving: Learning and Teaching Technology in Context." *ERIC Digest* EDO-IR-94-1 (May 1994). n.p.

Eisenberg, Michael B. and Robert E. Berkowitz. *Information Problem-Solving: The Big Six Skills Approach to Library & Information Skills*. Norwood, NJ: Ablex Publishing Corporation, c1990.

Fond du Lac School District. *1995-1998 Technology Plan. Revised*. Fond du Lac, WI: FDLSD, 1997.

Fulton, Kathleen. *Learning in a Digital Age: Insights into the Issues (The Skills Students Need for Technological Fluency)*. Santa Monica, CA: Milken Exchange on Education Technology. Milken Family Foundation, 1997.

Governor's Council on Model Academic Standards. *Wisconsin's Model Academic Standards*. Madison, WI: WDPI, 1998.

International Technology Education Association. *Technology for All Americans: A Rationale and Structure for the Study of Education*. Reston, VA: ITEA, 1996.

International Society for Technology in Education. *National Educational Technology Standards (NETS): Profiles of Technology Literacy Students*. (On-line) Available http://www.iste.org/specproj/standards/nets/profview.html, January, 1998.

International Society for Technology in Education. *Standards for Basic Endorsement in Educational Computing and Technology Literacy*. (On-line) Available http://www.iste.org/specproj/standards/standard.htm, January, 1998.

James, Vincent and Erin Jansen. *NetLingo*. (On-line) Available http://www.netlingo.com/, February, 1998.

Kenosha Unified School District No. 1. Department of Library Media and Instructional Technology. *Instructional Technology Standards and Benchmarks*. Kenosha, WI: KUSD, 1997.

Khader, Majed J. *Glossary of Library and Information Science Terms*. 1995. ERIC document no. 385286.

Library Media & Technology Standards Committee. *Library Media & Technology: Curriculum Standards and Benchmark Indicators*. Madison, WI: Madison Metropolitan School District, 1996.

Mequon-Thiensville School District. *Educational Technology Plan*. Mequon, WI: MTSD, 1998.

Milken Exchange on Education Technology. *National Forum for Leaders in Education Technology, February 18-20, 1998, New Orleans, Louisiana*. Santa Monica, CA: Milken Exchange on Education Technology. Milken Family Foundation, 1998.

Minneapolis Public Schools. *Information Media & Technology: Ages 5-9*. (On-line) Available http://www.mpls.k12.mn.us/med1.html, January, 1998.

Minneapolis Public Schools. *Information Media & Technology Content Standards: Ages 9-14*. (Online) Available http://www.mpls.k12.mn.us/med2.html, January, 1998.

Minneapolis Public Schools. *Information Media & Technology Content Standards: Ages 14-18*. (On-line) Available http://www.mpls.k12.mn.us/med3.html, January, 1998.

Minnesota Dept. of Education. Division on Instructional Effectiveness. *Model Learner Outcomes for Educational Media and Technology*. White Bear Lake, MN: Minnesota Curriculum Services Center, 1986.

Office of the Superintendent of Public Instruction and the Washington Library Media Association. *Essential Skills for Information Literacy.* (On-line) Available http://www.wlma.org/literacy/eslintro.htm, January, 1998.

Oklahoma State Dept. of Education. *Oklahoma State Department of Education Priority Academic Student Skills: Information Literacy.* (On-line) Available http://www.sde.state.ok.us/lib/pass/infolit.html, January, 1998.

Oklahoma State Dept. of Education. *Oklahoma State Department of Education Priority Academic Student Skills: Instructional Technology.* (On-line) Available http://www.sde.state.ok.us/lib/pass/isnttech.html, February, 1998.

Oregon School District. *A Study of Library Media Services: Oregon School District.* Oregon, WI: OSD, 1995.

Oregon School District. *Technology in the Classroom: Products of Oregon School District Elementary Students.* Oregon, WI: OSD, 1997.

Quesada, Arli and Sue Lockwood Summers. "Literacy in the CyberAge: Teaching Kids to Be Media Savvy." *Technology & Learning,* v. 18, no. 5 (January 1998), pp. 30-36.

School District of Janesville. *Strategic Plan for Technology: A Work in Progress.* Janesville, WI: SDJ, 1997.

Sutton, Ronald E. "Information Literacy Meets Media Literacy and Visual Literacy." *Selected Readings from Conference of the International Video Literacy Association.* (24th, Pittsburgh), 1993.

U.S Dept. of Labor. Secretary's Commission on Achieving Necessary Skills (SCANS). *What Work Requires of Schools: A SCANS Report for AMERICA 2000.* Washington, DC: GPO, 1993.

Weinstein, Peter. "Technology Snapshot: Pushing and Pulling on the Web." *Technology & Learning,* v.18, no. 5 (January 1998), pp. 24-26.

Wisconsin Dept. of Public Instruction. *Designing Schools to Accommodate Technology.* Madison, WI: WDPI, 1996.

Wisconsin Dept. of Public Instruction. *Instructional Telecommunications: A Resource and Planning Guide.* Madison, WI: WDPI, 1995.

Wisconsin Dept. of Public Instruction. *Wisconsin Educational Technology Plan PK-12.* Madison, WI: WDPI, 1996.

Wisconsin Dept. of Public Instruction. Office of Educational Accountability. *Final Summary Report of the Proficiency Score Standards for the Wisconsin Student Assessment System (WSAS) Knowledge & Concepts Examinations for Elementary, Middle and High School at Grades 4, 8 and 10.* Madison, WI: WDPI, 1997.

Wisconsin Educational Media Association. *Information Literacy: A Position Paper on Information Problem-Solving.* Fennimore, WI: WEMA, 1993.

The Wisconsin Instructional Design System: WIDS 5 Verb List. Ripon, WI: Wisconsin Technical College System Foundation, Inc., 1997.

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Notes

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